

February 3, 2003

Mr. William G. Pennington
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512

Subject: 2005 Energy Efficiency Standards – Outdoor Lighting

Dear Bill:

Acuity Lighting Group is the largest manufacturer of luminaires and lighting equipment in North America. The California lighting market is estimated at just under \$1 billion and represents around 11% of the total US market. Acuity Lighting Group provides one of the widest selections of lighting products and is one of the top suppliers of products to California.

These comments are being submitted based on the February 2003 – Draft 3 2005 Building Energy Efficiency Standards for Residential and Nonresidential Buildings. These comments will reflect many of the same comments we have submitted to the Commission in the past on the proposed outdoor lighting measures.

We have worked extensively with the Commission and your contractors on the outdoor lighting measures since June 2001 to develop reasonable and meaningful standards for outdoor lighting. My company supports the development and application of outdoor lighting that focuses on the proper balance between energy, environmental, aesthetic and cost considerations. We have not opposed the development of outdoor lighting standards and have attempted to work with the commission to develop standards that would have a positive impact. I have personally spent significant time discussing my comments on the phone directly with the contractors and staff.

Once again it has been a challenge to evaluate the CEC draft since the draft was posted with less than fourteen days notice prior to the workshop coupled with the fact that the draft contains standards for many different building systems with the lighting requirements sorted into a variety of different sections within the draft.

TECHNICAL MODELS

I remain concerned that this proposal continues to move forward without making the technical models fully available to the public. I have expressed concerns numerous times with regard to the applicability of the models to the applications covered by the proposed standard. In order to determine the applicability, it is

necessary to have information related to the site geometry, luminaire optical performance, luminaire locations and orientations, pole heights and area of analysis.

These concerns were thoroughly outlined and described in my November letter. At the November workshop, Jim Benya described his work in verifying the parking lot models that had been used for previous drafts. At that workshop, he indicated he would be glad to share the models. Jim's data has not been made available for review. I do not question that the additional studies Jim has conducted verify similar results to the previous drafts. I also understand that the contractors have indicated the models are based on IESNA guidelines. I do question the assumptions within the models and their applicability to the proposed applications. These assumptions can have a dramatic impact on the overall results and have a high probability of skewing the results. I have also expressed concerns that these models set maximum allowed power density values based on minimum IESNA illuminance recommendations. I have not seen any data associated with the proposed standards to convince me that the models accurately represent the application requirements. To date, I am not convinced that the models and the resulting lighting power density proposals can be technically supported.

ASHRAE has developed models for outdoor lighting power densities and provided details regarding the assumptions for their models. In comparing the proposed ASHRAE LPD values to the proposed T24 LPD values, there are areas of drastic differences. This suggests that the topic of outdoor lighting certainly requires more study before implementing standards that could have a drastic impact on the public.

CUTOFF CRITERIA

I again express appreciation for the exceptions to the scope to exempt street and roadway lighting as well as industrial sites. However, the scope of this proposed standard remains very broad. I have had a number of conversations with the Commission with respect to the inclusion of the optical cutoff performance and do support it, but only with the exemptions as listed in the NEMA documents provided in the past. This cutoff requirement must include exemptions to allow for compelling safety interests, lighting to enhance the aesthetic beauty of an object, structure or landscape, as well as the other exemptions recognized in the NEMA Model Outdoor Lighting Regulation. My November letter also requested that the wattages covered for the cutoff requirement should be changed from "...lamps rated 175 watts or greater..." to "...lamps greater than 175 watts...". I have not receive any response from the Commission with regard to this request. Finally, in the November draft there was an exemption for the cutoff requirement if the luminaire was shielded by a building or canopy. It appears in the February draft that this exemption has been removed. I would like to request that the exemption be added back into the proposed standard.

LIGHTING ZONES

I continue to be concerned with regard to the Lighting Zones. In theory, the "Lighting Zones" can be a useful concept for lighting standards. They provide flexibility to set guidelines based on different objectives within each zone. However, the CEC proposal forces virtually all outdoor lighting applications into a Zone 2 or 3 requirement, which does not allow enough flexibility for the diversity of demographics within the state. There are no defaults for areas under LZ4 and there are concerns with regard to the restrictions on the size of LZ4. This may impose unreasonable restrictions on municipalities.

WATTAGE REDUCTION AFTER CURFEW

I have also explained that the requirement to reduce the wattage by 50% per luminaire cannot be accomplished with commercially available products. It is my understanding that there may be a prototype installation in California, but this system has not been proven to be reliable or cost effective. The details outlining my reasoning on what would be required to provide commercially available outdoor lighting products were described in my November letter. These product modifications would require significant and costly revisions to existing product designs. Given the breadth of the scope the Commission has chosen to cover with these outdoor standards, the problem of delivering commercially viable products becomes even more challenging. If the scope of applications were more narrowly focused, manufacturers could focus on a few product line revisions.

CEC staff have commented numerous times that the curfew requirements in this standard would not be enforced. If this criteria remains in the standard, individual municipalities will have the opportunity to enforce curfews. A lack of enforcement creates a burden on manufacturers to rush to develop compliant products when there may be a very limited market opportunity. Lack of enforcement also creates a situation where California will expect energy savings or demand reduction that will not be realized, further promulgating blackout situations in the future.

CEC has suggested an alternative solution to reduce the overall wattage of the site by 50% by switching off every other pole in a lot. The contractors have indicated this alternate solution has been successfully accomplished. As stated numerous times before, this alternative would create a serious risk to public safety due to the potential for dark areas and extremely poor uniformity ratios. If this has indeed been successfully accomplished, it would be very helpful to have access to the data that illustrates this as a successful lighting strategy. Furthermore, our experience suggests that the cost associated with wiring a site to switch alternate luminaires would require a 30% or higher increase to the installed cost.

LANDSCAPE & ORNAMENTAL LIGHTING

In the February 2003 draft, the category for landscape lighting has been expanded to cover landscape and ornamental lighting. What is most curious is the fact that the lighting power density values have been dramatically reduced from the November draft.

Landscape & Ornamental Lighting	LZ1	LZ2	LZ3	LZ4
Nov 2002 draft	0.25	0.50	1.00	2.00
Feb 2003 draft	Not allowed	0.01	0.02	0.04

There is no reference supporting or explaining these changes. Given the fact that the landscape category was first introduced in the November draft and the drastic changes that have been proposed, I would recommend that the Commission eliminate landscape and ornamental lighting from the 2005 standard proposal and deferred to study further.

The proposed outdoor lighting measures have resulted from requirements in SB5X that state "The commission shall adopt efficiency standards for outdoor lighting. The standards shall be technologically feasible and cost effective." Various professionals in the lighting industry have asked the Commission for the rationale for the outdoor lighting categories ever since SB5X was approved and have not received any information that describes the energy savings potential, demand reduction or cost effectiveness analyses. We continue to have questions with regard to the scope and justification of the outdoor lighting measures.

Thank you for your time and consideration of these comments.

Best regards,



Cheryl English

Vice President, Technical Marketing Services